

9 patterned metal film on said substrate, such that said photo mask develops a
10 diffraction pattern of said optical image during said optical transmission.

1 3. (amended) The apparatus of claim 1 wherein said photo mask comprises:

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2 a patterned spin-on-glass layer for phase shifting said transmitted electromagnetic
3 radiation, said spin-on-glass layer impregnated with polarizing members; and,
4 a patterned metal layer for blocking transmission of said electromagnetic radiation.

1 7. (twice amended) An apparatus for varying the transmission intensity in a photolithography
2 process comprising:

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3 a light source for optically transmitting an incident electromagnetic radiation beam with a
4 predetermined frequency spectrum;
5 a first polarizer capable of adjustment during optical transmission such that an optical
6 image focused on a substrate wafer is varied in contrast, said adjustment made relative
7 to a second polarizer;
8 focusing optics for concentrating said beam on said first polarizer;
9 a photo mask patterned with a plurality of optically transparent and optically opaque
10 regions, wherein said transparent regions are impregnated with said second
11 polarizer[,] fixed in a predetermined direction, and said opaque regions comprise a
12 patterned metal film on said substrate, such that said photo mask develops a
13 diffraction pattern of said optical image during said optical transmission; and,
14 reducing optics to reduce and focus said diffraction pattern on said substrate wafer.

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17. (amended) An apparatus for varying optical transmission intensity on a substrate wafer in
a photolithography process comprising:
a first polarizer capable of adjustment during optical transmission such that an optical
image focused on said substrate wafer is varied in contrast, said adjustment made
relative to a second polarizer; and,
a photo mask comprising a transparent substrate, a patterned metal film on said substrate,
and a spin-on-glass layer, said spin-on-glass layer impregnated with said second
polarizer fixed in a predetermined direction, such that said photo mask develops a
diffraction pattern of said optical image during said optical transmission.

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18. (amended) An apparatus for varying the transmission intensity in a photolithography
process comprising:
a light source for optically transmitting an incident electromagnetic radiation beam with a
predetermined frequency spectrum;
a first polarizer capable of adjustment during optical transmission such that an optical
image focused on a substrate wafer is varied in contrast, said adjustment made relative
to a second polarizer;
focusing optics for concentrating said beam on said first polarizer;
a photo mask comprising a transparent substrate, a patterned metal film on said substrate,
and a spin-on-glass layer, said metal film being opaque to polarized light, said spin-
on-glass layer impregnated with said second polarizer fixed in a predetermined